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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,507	10/23/2003	Ji Yong Park	1514.1032	6043
49455	7590	04/18/2006	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			SONG, MATTHEW J	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/690,507	<b>Applicant(s)</b> PARK ET AL.	
	<b>Examiner</b> Matthew J. Song	<b>Art Unit</b> 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,11,12 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-10,13 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/23/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-3, 6-10 and 13-14 in the reply filed on 1/17/2006 is acknowledged. The traversal is on the ground(s) that there would be no undue burden on the Examiner in examining both the method and product because they are in the same field of technology. This is not found persuasive because a serious burden exists in the differing issues likely to arise during the prosecution of the different statutory classes of invention.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 4-5, 11-12 and 15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 1/17/2006.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities: In line 3, "crystallizing" is spelled "crystallizaing", which is incorrect. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 8 recites the limitation "wherein an overlapping irradiated width of the thin film is larger than 0.5  $\mu\text{m}$ " in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 8 depends from claim 6, which does not recite an overlapping width.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Yang (US 2002/0197759 A1).

Yang teaches a method of sequential laser solidification (SLS) for crystallization of amorphous silicon. Yang also teaches the makes moves transversely by no more than the wide of the shaped patterns as a laser performs SLS crystallization. (Abstract). Yang also teaches a mask includes a plurality of slits A that pass a laser beam and a light absorptive areas B that absorb the laser beam and the wide of each slit A defines the grain size of the crystallized silicon ([0010]). Yang also teaches using a pattern of 2  $\mu\text{m}$  ([0072]) and grains of 1-1.5  $\mu\text{m}$  ([0076]), this reads on applicant's overlappingly irradiating the laser beam onto a region wider than 0.5  $\mu\text{m}$ . Yang also teaches an overlapped regions ([0040]). Yang also teaches moving the substrate 0.75  $\mu\text{m}$  (Table 1).

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8. Claims 1-3 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by jung (US 2002/0182341 A1).

In a method of crystallizing silicon, note entire reference, Jung discloses a method of using a laser beam having a width of 1-3 millimeters and an overlapping ratio of 90% is suitable ([0022]), this reads on applicant's overlapping width is greater than 0.5  $\mu\text{m}$  because 90% of 1 mm is larger than 0.5  $\mu\text{m}$ . Jung also discloses sequential laser solidification (SLS) ([0019]).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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10. Claims 6-10, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang (US 2002/0197759 A1) as applied to claims 1 and 3 above.

Yang teaches a method of sequential laser solidification (SLS) for crystallization of amorphous silicon. Yang also teaches the makes moves transversely by no more than the wide of the shaped patterns as a laser performs SLS crystallization. (Abstract). Yang also teaches a mask includes a plurality of slits A that pass a laser beam and a light absorptive areas B that absorb the laser beam and the wide of each slit A defines the grain size of the crystallized silicon ([0010]). Yang also teaches using a pattern of 2  $\mu\text{m}$  ([0072]) and grains of 1-1.5  $\mu\text{m}$  ([0076]), this reads on applicant's overlappingly irradiating the laser beam onto a region wider than 0.5  $\mu\text{m}$ . Yang also teaches an overlapped regions ([0040]). Yang also teaches more rapid crystallization can be achieved using masks having different slit patterns and laser ([0035]). Yang also teaches a pattern where the slit patterns are wider than an interval "O". (Fig 6 and [0035]).

Yang does not teach a mask with a laser transmission region that is wider than a laser non-transmission region by more than 1  $\mu\text{m}$  and the claimed amount of overlap.

Yang teaches using different patterns and a pattern where the laser transmission region is larger than a non-transmission regions. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Yang having a transmission region that is wider than a non-transmission region by more an 1  $\mu\text{m}$  and with an overlap of larger an 0.5  $\mu\text{m}$  by optimizing the mask size because the size of the slit is a result effective and different patterns are used to achieve more rapid crystallization. Furthermore, changes in size are held to obvious, absent evidence of unexpected results. (MPEP 2144.03).

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Referring to claim 13, Yang teaches crystallized silicon particles are re-melted, this reads on overlappingly irradiating already formed crystals.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Song whose telephone number is 571-272-1468. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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SUPERVISORY PATENT EXAMINER  
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Matthew J Song  
Examiner  
Art Unit 1722

MJS  
April 2, 2006